DOCUMENT RESUME

ED 390 211 EC 304 476

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TITLE The Use of Self-Modeling To Train Expressive Language Skills with Preschool Children with Language Delays.
INSTITUTION Memphis Univ., TN. Dept. of Instruction and Curriculum Leadership.
PUB DATE [95]
NOTE 23p.; Research report for Barbara K. Lipman Research Institute Program.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Case Studies; *Delayed Speech; Early Intervention; *Expressive Language; *Language Acquisition; Language Impairments; *Modeling (Psychology); Preschool Children; *Self Management; *Videotape Recordings

ABSTRACT

In this investigation, a case study approach was used with two preschool children with language delays to determine whether videotaped self-modeling (VSM) intervention would influence their expressive language development. Language samples of both children were videotaped and then edited to leave only the best examples of the target language skills for each child. The children then watched the videotapes. Results indicated negligible gains for one participant and significant gains in mean length of utterance and the amount of distinguishable utterances by the other child as a result of the VSM intervention. Discussion focuses on differences between the two children--one was "distractible, imitative, but with no gains" and the other was "attentive, no verbal imitation, and positive gains." Results raise questions about the role of verbal imitations in learning as well as the role of attention difficulties and developmental readiness. Study details, letters, and forms are attached. (Contains 20 references.) (DB)

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ED 390 211

The Use Of Self-Modeling to Train Expressive Language Skills with Preschool Children with Language Delays

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The University of Memphis

Research Report for
Barbara K. Lipman
Research Institute Program

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Acknowledgement

Funding for this project was provided by the Barbara K. Lipman Research Institute. Special thanks to the staff and children of the Barbara K. Lipman Preschool, Speech/Language pathology students of the University of Memphis, and to the parents of the participating children.

ABSTRACT

Videotaped self-modeling (VSM) has been used effectively to train positive behaviors and to extinguish negative behaviors across a wide range of ages and behaviors; however, studies of VSM use with preschoolers and in the training of language behaviors has been sparse. In this investigation, a case study approach was used with two Preschoolers with language delays to determine whether VSM intervention would influence their expressive language development. Results indicated negligible gains for one participant and significant gains by the other. Possible problems associated with the use of VSM with very young children are discussed

The Use Of Self-Modeling to Train Expressive Language Skills with Preschool Children with Language Delays

Background

Teachers and speech-language pathologists work to increase the verbal repertoires of children with language delays. The importance of expressive language ability of children entering kindergarten was illustrated by Simner (1983) when he found this skill to be one of the few that is moderately to highly correlated to later school success and, thus, to future literacy. A commonly used technique for training language skills is modeling with imitation (e.g., Guess, 1969; Lutzker & Sherman, 1974). Although the use of adult modeling and child imitation are common forms of interventions in language training (Fey, 1986), there has been limited research on how to maximize the model's effect on the observer's language production.

Research on the attributes of optimal models indicates that individuals close to the child's age who exhibit only slightly higher ability and have similar characteristics to the observer serve as the best models (Bandura, 1969; Hosford & Mills, 1983). Peer models have been effective in changing observer behavior (e.g., Schunk, Hanson, & Cox,1987; Zimmerman & Ringle, 1981); however, it is often difficult and time consuming to match behaviors, train the models, and manage the intervention.

Having individuals act as their own models has been proposed as a method to maximize characteristics that serve to promote attention to the model (Creer & Miklich, 1970; Hosford, 1981). Videotaped self-modeling, in which observers are shown only positive performances of a targeted behavior, has been shown to be an effective treatment across an extensive range of behaviors, ages, and abilities (e.g., Dowrick & Dove, 1980; Hosford & Brown,1976; Kahn, Kehle, Jenson, & Clark, 1990; Meharg & Lipsker, 1991). In a review of 27 studies using VSM (Meharg & Woltersdorf, 1990) it was found that in every case VSM resulted in moderate to dramatic gains in

target behaviors and that the gains occurred immediately after intervention began. In the same review, analysis of 12 comparative studies showed that in 10 incidences VSM was shown to be the superior treatment and in 2 cases it was equivalent. In spite of the apparent efficacy of VSM and the extensive use of adult-modeling in teaching language, there exists only two studies in the literature dealing with VSM in relation to training language behaviors with preschoolers (Buggey, In Press; Hepting, 1992). In both of these studies, positive gains were demonstrated by participants. In the study by Buggey, impressive results were obtained in acquisition, maintenance, and generalization of language skills. The spontaneous generalization of skills being taught to the preschoolers was especially interesting because this is an area often cited in literature as being a weakness of direct language instruction. Similar results were obtained in the Hepting study with some limitations. It appeared that the proximity of the language training to the site in which the language behaviors naturally occur with peers and adults was at least as important as the self-modeling treatment. It is important that the results of these studies be verified and replicated before self-modeling can become an important tool in language intervention.

Two other studies have been undertaken in which preschoolers were used as participants. These studies indicated problematic results for the efficacy of VSM. In one study (Beck, 1990), VSM was compared with videotaped peer modeling and a control (viewing Sesame Street videos) in decreasing aggressive behaviors in 4 preschool boys. The study incorporated a complex reversal single subject design in which treatments were preordered and alternated each week for 10 weeks. Behavioral observations were collected during free-play sessions immediately following intervention. Generalization data were garnered later in the school day during outdoor play time. The results indicated that none of the interventions resulted in significantly reduced instances of aggression by the participants.

The second study with negative findings also targeted aggressive and noncompliant behaviors (Clark, et al., 1993). In this study, no positive effects were

found after VSM intervention in reducing negative behaviors of 6 male preschoolers. The lack of positive results raises the question as to whether VSM is as effective with preschool behaviors as it is with behaviors of older participants.

The purpose of this study was to determine whether the successful results obtained in other studies can be duplicated in a different setting and across different types of language behaviors. If VSM can be shown to be an effective agent in improving expressive language of preschoolers, it could be developed as an important teaching tool for improving later school success rates of children who might otherwise be at-risk for school failure.

Method

Participants and Setting

Three students with delayed language and one with a problem with "defiant-oppositional" behavior were originally selected from the population at The Lipman Center to participate in the study. In the early stages of the study, one of the children with language problems and the child exhibiting defiant behaviors were reported by their teachers as making significant progress using conventional methods, and were thus dropped from the study. Informed consent was obtained from the parent(s)/caregiver and the preschool organization.

A conference room and a therapy room served as sites for the intervention. It was originally hoped that the intervention would take place within the child's classroom; however, this was seen by the teachers as a possible cause of disruption and, thus the intervention sight was moved.

One of the children selected for the investigation (Child A) attended the Montessori Preschool at the Lipman Center. His attendance at the school was somewhat erratic; however, he consistently attended at least two days per week. Child A had a diagnosed language delay. His expressive language was limited mostly to one word utterances. He rarely used any subject - verb or subject - object structures.

Child B attended the Toddler Class at the preschool five days per week. She was four years old and was diagnosed as having a developmentally delay. This child had Down Syndrome. Her younger sister also attended this class. Child B was receiving speech/language therapy twice a week, once at the preschool site and once through another program in the city. These programs were focusing on articulation and expressive language skill development. Specific objectives for Child B being addressed in her therapy included the reduction of babbling-like utterances, reducing the speed of her speech, and improving her social and pragmatic language skills.

Design

A modified multiple baseline design across subjects and behaviors, and a simple pre-post T-test analysis were used for evaluating the effectiveness of the intervention. The nature of measuring target behaviors other than MLU within participants was not compatible with a traditional across behavior design. Behaviors other than MLU were figured separately in the analysis of the data. Pre and post test results were also analyzed using a T-test to determine significance of MLU gains. Qualitative data were obtained from parents, teachers, and support staff concerning the efficacy of the treatment.

Procedure

Independent variable

The independent variable in this study was the introduction of a VSM intervention. The students viewed an edited videotape of themselves producing only the correct targeted language behavior for 5 to 7 minutes a day over a period of approximately 3 weeks per behavior.

Dependent variables

Dependent variables for each child were chosen following the second week of audiotaped language sample collection in the baseline stage of the study. Audiotaped

language samples were collected daily, transcribed, and analyzed. Emphasis was placed on determining the morphological complexity of the samples; marking pragmatic use including number of initiations, conversational partners, articulation clarity; and context (site) of the utterances.

Two dependent variables were measured in this study per child. For child A the dependent variables chosen were use of multiple-word utterances and Mean Length of utterance (MLU). MLU is a general measure of the complexity of syntax taking into account morphological elements of the person's language. These morphological elements provide developmental markers which can be used to gain a general idea of the child's developmental status in language.

For Child B, the first dependent variable was her mean length of utterance. The second dependent variable was clarity of her speech as derived from interrater agreement of transcribed audiotaped language samples and through qualitative surveys of parents and care-givers. Measuring clarity of utterances was particularly difficult. Language samples were transcribed independently. Words in utterances that were unclear, were first replayed and if still unclear, were replayed at half speed. Thus, a rough measure of vocal clarity was generated by comparing transcribed manuscripts. Words were scored as either, clear (heard distinctly by both raters), unclear (neither rater could discern word), or uncertain (discerned by only one of the two raters).

The parents of both participants were also solicited for feedback concerning effects of the intervention. An important aspect of this study was to attempt to gather some social validity measures of the intervention from the parents viewpoint. Parents were informed of the basic technique being used for the intervention but were kept naive concerning the specific behaviors being addressed. Upon completion of the study, parents were given copies of the intervention tapes and transcriptions of each of the language samples. Results were discussed and feedback

from the parents was gathered and will be addressed in the "Results" section of this report.

Baseline.

The baseline period lasted for approximately 3 weeks for Child A and 4 weeks for Child B. Audio-taped language samples were collected and transcribed at the end of each school day. Throughout the study the children were wearing voice-activated, miniature tape recorders. Children began using the tape recorder 3 days prior to the beginning of the baseline phase to minimize reactivity to the instrument. The recorder was very light and durable and easily fit into a "fanny pack". This method of data collection was deemed less obtrusive and more accurate than either stationary audio recorders or videotape recorders. This manner of data collection was used in a previous study conducted by this researcher and it was found to be extremely accurate in obtaining naturalistic language samples. It was also noted that the miniature tape recorders, worn in the fanny-packs, provided minimum disruption to the child's daily activities.

Videotaped self -modeling

Each child was videotaped twice during the baseline phase of the study. The child was with the researcher and the speech/language pathologist (SLP) in a therapy room for the first videotaping session and in the same room, but without the SLP for the second taping. Language samples were obtained by two methods. The first method entailed simple modeling in which the SLP or the researcher asked the children to imitate utterances that were slightly more developed than the best utterances found on their language samples during baseline. For Child A, this meant two and three word utterances with agent-object, agent-verb, verb-object, and agent-verb-object structure. For Child B, the adults asked her to repeat the more complex utterances she had used during baseline, but in a slower more deliberate manner. The adult prompted the child to imitate the target behavior and reinforced correct responses by using praise (e.g., "Good job; I like the way you're talking!").

Baseline continued for at least 4 days following the videotaping to determine whether the child began to use the language behavior as a result of the taping sessions.

Approximately 45 minutes of tape was collected for each student. These two tapes were then analyzed by the researcher and edited to leave only the best examples of the target language skills for each child. The final tape lengths for Child A and B were 5.2 and 7.2 minutes respectively. A brief audio blurb was inserted as an introduction to each video that stated, "Welcome to the [child's name] show. [child's name] will now show us how to [target behavior] the right way." This introduction was intended to draw the children's attention to the TV.

Following the baseline phase of the study, Child A began to view his videotape. Baseline continued for Child B and the VSM tape was introduced two weeks later.

Social validation

following the study, parents and teachers were asked for feedback concerning whether they observed the use of target behaviors at home or school and whether they perceived the intervention as helpful.

Interrater reliability

All audio tapes collected during baseline, intervention, and follow-up phases of the study was scored independently by the author and a special education graduate student to obtain a measure of interrater reliability. Percentage agreement was calculated as the measure of interrater reliability.

Results

The results of the intervention present a clear dichotomy between the two participants. In terms of the Mean Length of Utterance, Child A made virtually no gains while child B made significant progress. The results are summarized in Table 1 and figure 1.

Insert Table 1 and Figure 1 about here

Child A's MLU stayed relatively stable throughout baseline and intervention stages. The slight increase in mean MLU from 1.5 to 1.53 was not significant, and could easily be attributed to natural development or error in measurement. Child B's progress, however, was significant in both qualitative and quantitative measures. Visual inspection of data, T-tests, and parental reports all revealed positive gains.

Child A was also evaluated concerning his use of multiple-word utterances. Results are presented in Figure 2. There was no significant change in his percentage use of multiple-word utterances between baseline and Intervention.

Insert Figure 2 about here

Parent Reports

The mother of Child A reported little difference in her child's language use at home. There did seem to be some increase in the use of multi-word utterances, however. The mother of Child B commented that her child seemed to be "aware" of the purpose of the tapes and was making visible efforts to speak slower and more distinctly. She thought the intervention had made a difference in her child's expressive language.

Interrater Reliability

Interrater Reliability, based on aggreement of words in the langauge samples was over 80% in each of the langauge samples selectedwith an overall aggreement mean of 85%. Thirty two percent of the language samples taken were transcribed by both raters.

Conclusions

The VSM intervention appeared to be effective in improving Child B's MLU and the amount of distinguishable utterances. On the other hand, the VSM intervention had negligible results on both target behaviors of child A.

Discussion

Any attempt to generalize these results must bear in mind that there were only two participants in the study. There is also difficulty in analyzing language, with all it's complexities, with such crude measures as MLU and percentage of muliple utterance use. However, the clear differences in results between the two children raise interesting points especially in light of the reports of lack of success of VSM with preschoolers who may exhibit attention problems (i.e., Beck 1990; Clark, et al., 1993). Child A was extremely distractible during the viewing session. It was difficult to hold his attention on his videotape for longer than 30 seconds. Interestingly, this child would often participate in imitating what he heard on the VSM tape even when out of his seat and focusing on other objects. On the contrary, Child B seemed totally occupied with her tape and, upon completion of the session, often requested to see it again. Although encouraged, Child B never participated in verbal imitation. To summarize, Child A could be considered "distractible, imitative, with no gains", while Child B could be categorized. as "attentive, no verbal imitation, and positive gains". These categorizations raise questions that apply to how children best learn information from video sources and to the role of verbal imitations in learning.

If these results can be verified with larger samplings of preschoolers, it would add evidence to the Social Learning theorists' view that imitation immediately following a prompt may, in fact, hinder processing of presented material (Bandura, 1986). If the findings are not verified, then, at least, one might say that the use of imitation with visually presented material will have a

wide range of efficacy with children and that careful attention of teachers should be given to how effective this technique is with specific individuals.

The results of Child B joined with other findings of problematic results with children with attention difficulties emphasizes the problems these children may have in obtaining information. The role of attention difficulties associated with later school problems has been documented (Simner, 1983) and the same difficulties may be associated with failure to retain material presented in audio-visual format. It is possible that the tapes were not interesting enough to secure Child B's attention. It would be interesting to study whether video tapes using a more colorful, eye-catching format would work better with Child B.

The element of developmental readiness for this type of intervention seems to be a critical issue as seen in the success rate contrast of preschool studies versus studies with older participants. Readiness for VSM may be more than a function of mental age or overall development. Studies with preschoolers should continue. Besides efficacy of treatment, light may be shed on how children best learn from video sources and what developmental factors contribute to successful learning in this presentation format.

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Table 1. Pre and Post Intervention T-test results of MLU for Child A and Child B

Child A		Child B	
Daily MLU Means		Daily MLU Means	
Baseline	Intervention	Baseline	Intervention
1.05	1.68	2.770	3.540
1.57	1.52	2.220	2.470
1.35	1.75	1.970	3.340
1.62	1.68	2.180	2.960
1.79	1.43	2.500	3.820
1.59	1.29	2.510	.
	1.22	2.270	.
	1.7	2.290	.
		2.260	.
Mean 1.495	1.534	Mean 2.330	3.226
SD 0.259	0.202	SD 0.232	0.526
DF = 5		DF = 4	
T = -.398		T = -4.353	
Prob = .707		Prob = .012	

Figure 1. Average Daily MLU for study participants

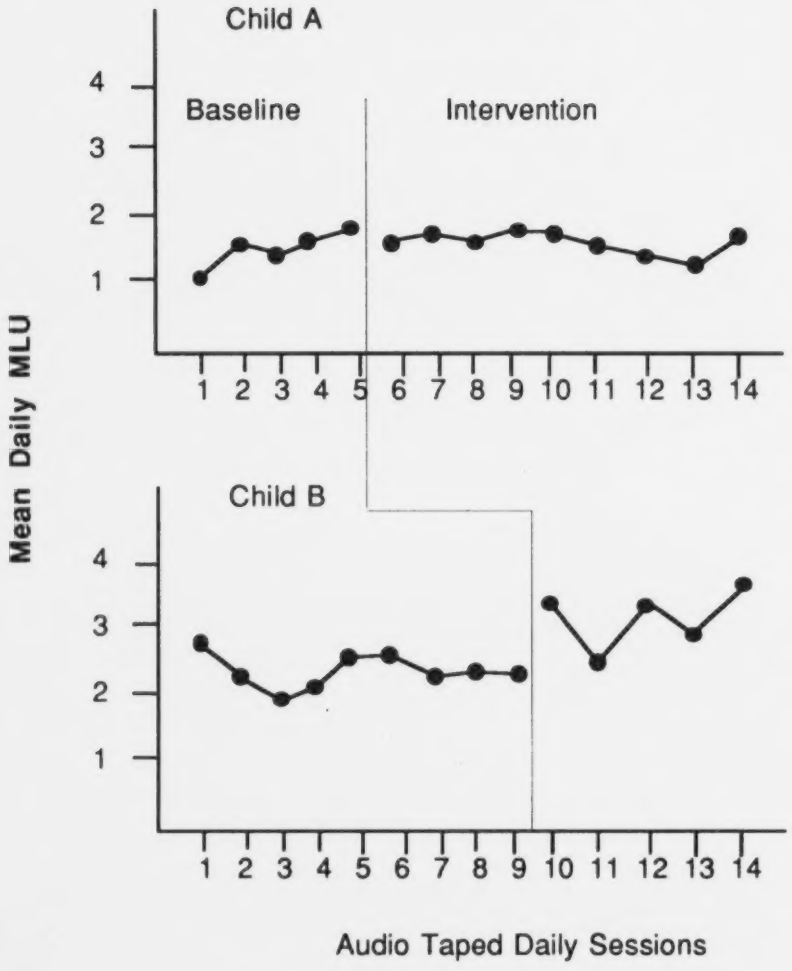
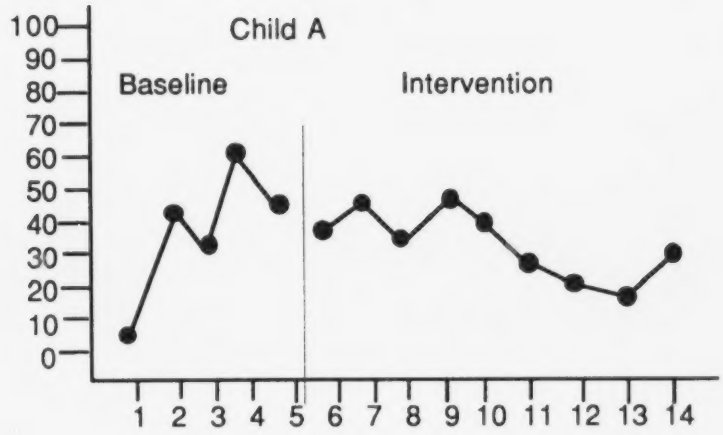


Figure 2. Daily Percentage Use of Multiple-Word Utterances of Child A



Appendix A

Informed Consent Letter and Form

INFORMED CONSENT FORM

Title of Investigation: Effect of Self-Modeling on Language Skills and Conduct Behaviors of Preschool Children.

Investigator: Thomas Buggey

Date: Jan 10, 1995

Explanation of Study

Their are two major goals of this Study. One will be to improve expressive language skills of children, and the other will be to change specific conduct behaviors of the children seen as inappropriate by parents and staff. Only one behavior (language or conduct) will be chosen for each participant. For the first goal, the purpose of this study will be to try to improve your child's verbal language. Traditional language training has been shown to be effective in improving children's language in the setting in which the training takes place; however, researchers are not sure how well the language being trained is then used by children in their normal conversations.

In my study I will have your children watch videos of themselves producing correct language skills. I will tape videos of your child imitating the correct language behavior as modeled by an adult. I will then edit the tapes and "dub" in language that would occur in normal conversation around your child's responses. For example, I may tape the child saying, "I go to sleep." after an adult has said, "Say, 'I go to sleep.'" I will edit the tape so that it sounds like this: Adult; "What do you do at night?" Child; "I go to sleep". Each morning your child will watch the tape with their teacher for not more than 3 minutes and will repeat what they hear themselves say on TV. This technique, called Videotape self-modeling (VSM), has been used effectively to train a wide range of behaviors but has never been used with a preschool-aged group.

Data on the children's use of language will be obtained by using audio taping. These tapes will be used in the strictest confidence, and will be used to insure that we obtain an accurate description of the child's language. At the end of the study these tapes will be destroyed if you so desire. For approximately 45 minutes each day your child will wear a voice activated,

miniature tape recorder which we will put in a "fanny pack" so he/she can wear it with as little fuss as possible. Because the goal of the study is to see whether your child is using the targeted language behavior in normal conversations, this method of collecting data was seen as the best way to avoid interfering with his normal daily routine.

It is also hoped that your child's use of language will improve as a result of this study. Research has shown that a child's skill in expressive language can greatly benefit him/her in later school years. At the end of the study, I will be asking you and the teachers some questions about changes you may have seen in your child's language use.

A similar approach will be taken for the children who's conduct behavior is attempting to be modified. However, in this case we will tape the child over time and then edit the tape to eliminate any occurrence of the undesired behavior. The child will view themselves only acting appropriately and will be reinforced for this positive behavior. From the point of view of this study, negative occurrences of the behavior being modified will be largely ignored.

If you have any concerns or question feel free to contact me at the following numbers: Office - 678-3415; Home - 795-7922. Thank you very much for your consideration.

Thomas J Buggey
412-A Ball Bldg.
The University of Memphis

INFORMED CONSENT FORM

The University of Memphis

Title of Investigation: Using Milieu Intervention Techniques to facilitate Language Generalization.
Investigator: Dr. Thomas Buggey
Date: Jan. 21, 1995

This is to certify that I, _____, hereby give permission to have my child, _____participate in a scientific investigation as an authorized part of the education and research program of The University of Memphis under the supervision of Dr. Thomas Buggey.

The investigation and my child's part in the investigation have been defined and fully explained to me by Dr. Buggey, and I understand his explanation. A copy of the procedures of this investigation and a description of any risks and discomforts has been provided to me and has been discussed in detail with me.

I have had an opportunity to ask whatever questions I may have had and all such questions and inquiries have been answered to my satisfaction.

I understand that I am free to deny any answers to specific items or questions in interviews or questionnaires and that any audio or video tapes of my child wii be destroyed following the study unless I give my permission otherwise.

I understand that any data or answers to questions will remain confidential with regard to my child's identity.

I understand that, in the event of physical injury resulting from this investigation, neither financial compensation nor, I certify that to the best of my knowledge and belief, My child has no physical or mental illness or weakness that would increase the risk to him/her of participation in this investigation.

I FURTHER UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND TERMINATE MY CHILD'S PARTICIPATION AT ANY TIME.

I hereby consent to the participation of _____, a minor as a participant in the scientific investigation described.

_____ _____

Date Signature of minor participant's parent or guardian